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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/849,307	05/07/2001	Randal Chilton Burns	ARC920000024US1	8672

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EXAMINER	
KNOLL, CLIFFORD H	
ART UNIT	**PAPER NUMBER**
2189	

DATE MAILED: 10/27/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/849,307	BURNS ET AL.	
	Examiner	Art Unit	
	Clifford H Knoll	2189	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____ .

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) 1-68 is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) 1-68 is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

DETAILED ACTION

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

1. Claims 1-68 are rejected under 35 U.S.C. 103(a) as being unpatentable over Norton ("Common Internet File System (CIFS), Version: CIFS-Spec 0.9") in view of Miloushev (US 2002/0120763).

Regarding claims 1 and 16, Norton discloses locking system and a corresponding method on a distributed file system (e.g., p.1, Introduction), a consumer lock, a producer lock (e.g., p.3, §1.13), wherein upon completion of said writer changing said block of data, the reader is notified the block of data has changed (e.g., p.3, §1.14). Norton does not expressly mention that the producer releases the lock; however this is manifestly the obvious use of a lock, as exemplified by Miloushev. Miloushev discloses wherein the writer releases the lock (e.g., paragraph [0230]).

Regarding claim 30, Norton discloses locking system and a corresponding method on a distributed file system (e.g., p.1, Introduction), a consumer lock, a producer lock (e.g., p.3, §1.13), updating (e.g., p.3, §1.14). Norton fails to mention releasing the

lock; however this common practice is exemplified by Miloushev. Miloushev discloses wherein the writer releases the lock (e.g., paragraph [0230]).

It would be obvious to combine Miloushev with Norton, because the field of Miloushev's invention was distributed file systems, for which Norton provided a widely regarded industry specification. In particular, Miloushev explicitly references the specification as being applicable (paragraph [0012]). Therefore, it would be obvious to one of ordinary skill in the art to combine Miloushev with Norton at the time the invention was made.

Regarding claims 2 and 17, Norton also discloses writing updated data to a different physical location (e.g., p.3, §1.13, "read-caching").

Regarding claims 3 and 18, Norton further discloses notification informs said reader of said updated data location (e.g., p.3, §1.14, "the server").

Regarding claim 5, 20, and 36, Norton further discloses reading said updated data from said updated data location (e.g., p.3, §1.14, "the server").

Regarding claims 7, 22, and 38, Norton fails to disclose a physically separate block for writing however this is disclosed by Miloushev. Miloushev discloses writing data to storage devices physically separated from the storage device located on said file system server (e.g., paragraph [0414]).

Regarding claims 8, 23, and 39, Miloushev also discloses writing data via a storage area network (e.g., paragraph [0034]).

Regarding claims 9, 24, and 40, Miloushev also discloses the server storing metadata (e.g., paragraph [0029]).

Regarding claims 10, 25, and 41, Miloushev also discloses the storage devices cache data (e.g., paragraph [0414]).

Regarding claim 13, Norton also discloses separate consumer locks (e.g., p.3, §1.13, "many clients", §1.14).

Regarding claims 14, 28, and 44, Miloushev also discloses where readers and writers access metadata via a data network separate from said storage area network (e.g., paragraphs [0115], [0269]).

Regarding claim 31, Norton further discloses notification informs said reader of said updating (e.g., p.3, §1.14, "the server").

Regarding claims 32 and 33, Norton also discloses writing updated data to a different physical location (e.g., p.3, §1.13, "read-caching").

Regarding claim 34, Norton further discloses notification informs said reader of said updated data location (e.g., p.3, §1.14, "the server").

Regarding claim 47, Norton also discloses a sequential consistency model including file system caching (e.g., p.3, §1.13).

Regarding claim 48, Norton also discloses a sequential consistency model without file system caching (e.g., p.3, §1.12).

Regarding claims 49 and 50, Norton also discloses weak consistency comprising a consumer lock allowing a reader to read a block of data (e.g., p.3, §1.12, "read-ahead"), a producer lock allowing a writer to change said block of data and on

completion releasing said lock and notifying said granted reader that said block of data has been changed (e.g., p.3, §1.14).

Regarding claim 51, Norton also discloses multiple locking protocols comprising sequential consistency model including caching (e.g., p.3, §1.13, "protocol supports caching"), sequential consistency model without caching (e.g., p.3, §1.13, "all file operations have to go to the server"), and weak consistency model (e.g., p.3, §1.14).

Regarding claim 52, Norton also discloses a consumer lock, a producer lock (e.g., p.3, §1.13), wherein upon completion of said writer changing said block of data, writer releases the lock, and the reader is notified the block of data has changed (e.g., p.3, §1.14).

Regarding claim 54, Miloushev discloses where locking protocol is based upon any of owner, group or file extension (e.g., paragraph [0272]).

Regarding claim 55, Miloushev discloses locking protocol changed by a file system call (e.g., paragraph [0280]).

Regarding claim 56, Miloushev discloses locking protocol assigned via file metadata (e.g., paragraph [0272]).

Regarding claim 57, Miloushev discloses determining the locking protocol via a file extension (e.g., paragraph [0286]).

Regarding claim 58, Norton discloses server connected to at least one client managing data consistency and cache coherency through multiple locking protocols (e.g., p.3, §1.13). Miloushev discloses a storage device connected to said client (e.g.,

paragraph [0058]), a locking protocol assigned via file metadata (e.g., paragraph [0272]).

It would be obvious to combine Miloushev with Norton, because the field of Miloushev's invention was distributed file systems, for which Norton provided a widely regarded industry specification. In particular, Miloushev explicitly references the specification as being applicable (paragraph [0012]). Therefore, it would be obvious to one of ordinary skill in the art to combine Miloushev with Norton at the time the invention was made.

Regarding claim 59, Norton also discloses a sequential consistency model including file system caching (e.g., p.3, §1.13), and a sequential consistency model without file system caching (e.g., p.3, §1.12).

Regarding claim 60, Norton also discloses weak consistency comprising a consumer lock allowing a reader to read a block of data (e.g., p.3, §1.12, "read-ahead"), a producer lock allowing a writer to change said block of data and on completion releasing said lock and notifying said granted reader that said block of data has been changed (e.g., p.3, §1.14).

Regarding claim 61, Miloushev discloses writing data to storage devices physically separated from the storage device located on said file system server (e.g., paragraph [0414]).

Regarding claim 62, Norton further discloses notification informs said reader of said updated data location (e.g., p.3, §1.14, "the server").

Regarding claim 64, Norton further discloses reading said updated data from said updated data location (e.g., p.3, §1.14, "the server").

Regarding claim 66, Miloushev further discloses the reader as a web server (e.g., paragraph [0053]).

Regarding claim 67, Miloushev further discloses the writer as a database management system (e.g., paragraph [0387]).

Regarding claim 68, Norton also discloses separate consumer locks (e.g., p.3, §1.13, "many clients", §1.14).

Therefore claims 1-68 are rejected.

2. Claims 4, 6, 11, 12,15, 19, 21, 26, 27, 29, 35, 37, 42-45, 53 are rejected under 35 U.S.C. 103(a) as being unpatentable over Norton in view of Bourne (US 2003/0120875).

Regarding claims 4, 19, and 35, Norton does not expressly mention invalidating cache; however this implementational detail is disclosed by Bourne. Bourne discloses invalidating cache on notification (e.g., paragraph [0012]).

Regarding claim 6, 21, and 37, Norton does not expressly mention that a reader continues to read; however this implementational detail is disclosed by Bourne. Bourne discloses the reader continues to read while said writer is writing (e.g., paragraph [0053]).

Regarding claims 11, 26, and 42, Norton does not expressly mention the particular implementation of a web server; however, this is disclosed by Bourne. Bourne discloses the reader is a web server (e.g., paragraph [0034]).

Regarding claims 12, 27, and 43, Norton does not particularly mention the implementation of a server as a database management system; however Bourne discloses this feature. Bourne discloses the writer is a database management system (e.g., paragraph [0035]).

Regarding claims 15, 29, and 45, Bourne discloses multiple locking systems for data where the locking system used for a particular block is dependent on what application utilizes said particular block of data and the locking system utilized is indicated by the metadata (e.g., paragraph [0084]).

Regarding claim 53, Bourne discloses default locking protocols being set for portions of the file system name space (e.g., paragraphs [0053-0055]).

It would be obvious to combine Bourne with Norton, because the field of Bourne's invention was distributed file systems, for which Norton provided a widely regarded industry specification. In particular, the specification of locking protocols in a distributed environment with caching such as the invention of Bourne. Therefore, it would be obvious to one of ordinary skill in the art to combine Bourne with Norton at the time the invention was made.

Thus are claims 4, 6, 11, 12,15, 19, 21, 26, 27, 29, 35, 37, 42-45, 53 rejected.

3. Claims 63, 65 rejected under 35 U.S.C. 103(a) as being unpatentable over Norton and Miloushev as applied supra, further in view of Bourne.

Regarding claims 63, Norton and Miloushev do not expressly mention invalidating cache; however this implementational detail is disclosed by Bourne. Bourne discloses invalidating cache on notification (e.g., paragraph [0012]).

Regarding claim 65, Norton and Miloushev do not expressly mention that a reader continues to read; however this implementational detail is disclosed by Bourne. Bourne discloses the reader continues to read while said writer is writing (e.g., paragraph [0053]).

It would be obvious to combine Bourne with Miloushev and Norton, because Bourne's improvement was directed toward caching in distributed file systems such as that practiced by Miloushev, and specified by Norton. Therefore, it would be obvious to one of ordinary skill in the art to combine Bourne with Miloushev and Norton at the time the invention was made.

Thus are claims 63 and 65 rejected.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. The following all give good disclosures of various features in a distributed network file system with caching:

Bai (US 2002/0107944) discloses a distributed file system with web servers receiving content update from a publisher.

Shah (US 2002/0091763) discloses a means for determining whether data comes from a server stream or from a local cache.

Evans (US 2003/0033283) discloses a "publish & subscribe distributed system that is similar to the applicant's weak consistency locking protocol.

Corcoran (US 2003/0120752) discloses a means for determining locking protocols in a distributed system.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Clifford H Knoll whose telephone number is 703-305-8656. The examiner can normally be reached on M-F 0630-1500.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mark H Rinehart can be reached on 703-305-4815. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-2100.

XUAN M. THAI
PRIMARY EXAMINER
TC2100

chk